DOCKET NO.: MSFT-2118 (304101.01)
Application No.: 09/617,669
Office Action Dated: March 24, 2004

PATENT
REPLY FILED UNDER EXPEDITED
PROCEDURE PURSUANT TO
37 CFR § 1.116

REMARKS/ARGUMENTS

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Overview of the Office Action

Claims 1, 2, 6, 8-15 and 17-20 have been rejected by the Examiner under 35 U.S.C.

§ 102(b) as being anticipated by Brown et al. (U.S. Patent No. 5,673,403).

Claims 3-5 and 16 have been rejected by the Examiner under 35 U.S.C. § 103(a) as

unpatentable over Brown in view of Ote et al. (U.S. Patent No. 5,367,628).

Claim 7 has been rejected by the Examiner under 35 U.S.C. § 103(a) as unpatentable over

Brown in view of Brett (U.S. Patent No. 5,850,471).

Status of the Claims/Amendments

Claims 1-20 are pending.

Claims Rejected Under 35 U.S.C. § 102(b)

Claims 1, 2, 6, 8-15 and 17-20 have been rejected by the Examiner under 35 U.S.C.

§ 102(b) as being anticipated by Brown et al. (U.S. Patent No. 5,673,403). However, in

response, Applicants respectfully disagree with the Examiner's conclusion that the invention of

Brown includes each and every claim limitation present in Claims 1, 2, 6, 8-15 and 17-20 of the

present Application.

More specifically, the Examiner has stated that "Brown clearly teaches that to be able to

run and display an application written for a different operating system, the application calls are

mapped into that operating system form which enable the application commands to be

recognized by the library of function calls (col. 2 lines 3-43)" and that "the data of the second

operating system will utilize a part of memory in the first operating system to run and display its

data on the first operating system; therefore, the mapping technique and utilizing a part of

memory are how the emulated virtual machine actually works" (Office Action, page 7, lines 2-

8). However, Applicants respectfully submit that this functionality does not constitute an

operating system running on a "virtual machine" as defined by the specification of the present

Application because the second operating system in Brown is in fact executing on a second set of

physical hardware whereas, in contrast, a virtual machine is a software representation of

hardware that does not in fact exist in any physical sense for that system (thus it is "virtual," not

real). In other words, as described in the present application, **the host operating system and the**

emulated operation systems are capable of entirely executing on the same single set of

physical hardware—the host operating system executing directly on the physical hardware, and

the emulated (or "guest") operating system running on a software representation of a second

physical hardware (that does not in fact physically exist for the system) which is logically

created by an emulator program (an application) running on the host operating system. Thus, in

light of the Specification for the present Application, **an operating system running directly on**

physical hardware is not "emulated" because the physical hardware, but its very existence,

is not virtual, no matter where the output of said operating system is converted,

interpreted, or displayed.

Based on the foregoing, and keeping in mind this distinction between physical hardware

(which does exist in the system) and virtual hardware (which nowhere exists in the system),

Applicants respectfully resubmit its previous analysis and arguments for Examiner's

reconsideration.

The invention of Brown is directed to "[t]wo or more interconnected computer systems,

each having a different operating system" wherein "the present invention includes at least two

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inter-connected computer systems, each having a different operating system running thereon" (Brown, Abstract, lines 1-7; col. 2, lines 10-12). In other words, the invention of Brown is directed to at least two operating systems, each of which is running directly on computer hardware. The invention of Brown also teaches a method by which a first operating system running on one computer system can provide a mere graphical user interface (GUI) for a second operating system running on a second operating system. However, Brown nowhere discloses multiple *emulated* operating systems being emulated by one or more emulator programs running on a host operating system.

An emulated operating system is an operating system that does <u>not</u> run directly on physical computer hardware, but instead an emulated operating system, by definition, is an operation system that runs on "virtual" computer hardware that exists <u>only</u> as a software representation in a host operating system environment (which may run directly on physical computer system hardware or, alternately, be a guest operating system itself at a lower layer of abstraction). This "virtual machine" concept is described in the Specification of the present Application as follows:

> To expand the number of operating systems and application programs that can run on a computer system, a field of technology has developed in which a given computer having one type of CPU, called a host, will include an emulator program that allows the host computer to emulate instructions of an unrelated type of CPU, called a guest. Thus, the host computer will execute an application that will cause on or more host instructions to be called in response to a given guest instruction. Thus, the host computer can both run software design[ed] for its own hardware architecture and software written for computers having an unrelated hardware architecture. ...

When a guest computer system is emulated on a host computer system, the guest computer system is said to be a virtual machine, as the host computer system exists only as a software representation of the operation of the hardware architecture of the guest computer system. The terms emulator and virtual machine are sometimes used interchangeably to denote the ability to mimic or emulate the hardware architecture of an entire computer system. ... An emulator program executing on the operating system software and hardware of the host computer...mimics the operation of the entire guest computer system. The emulator program acts as an interchange between the hardware architecture of the host machine and the instructions transmitted by the software running within the emulated environment.

(Specification, page 2, line 13 to page 3, line 11).

In order to anticipate a claimed invention, a prior art reference must teach each and every element present in the claim. Brown does not teach multiple emulated operating systems for virtual machines being emulated by one or more emulator programs running on the host operating system, but instead Brown teaches only operating systems running directly on physical computer system hardware which, in turn, requires more than one physical computer system to accommodate the minimum of two operating systems required by Brown.

In contrast, independent Claim 1 of the present Application—upon which Claims 2 and 6 depend—discloses multiple emulated operating systems being emulated by one or more emulator programs running on the host operating system, and thus the invention of Claim 1, as well as Claims 2 and 6, are patentably distinguishable from the invention of Brown since Brown fails to teach each and every element present in these claims.

Moreover, independent Claim 8—upon which Claims 9 and 10 depend—likewise discloses "multiple emulated virtual machines being emulated by one or more emulator programs

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running on the host operating system" (page 17, lines 12-14), and thus Claim 8, as well as claims 9 and 10, are patentably distinguishable from the invention of Brown since Brown fails to teach each and every element present in these claims for the same reasons set forth herein.

In addition, the invention of independent Claims 11 and 12—upon which dependent Claims 13-15 and 16-20 directly or indirectly depend—pertain to a "host computer system" and "multiple emulated computer systems" which, as disclosed in the Specification, comprise a host operating system and emulated operating systems (page 2, line 27 through page 3, line 11) which, again, are limitations of said Claims that are not found in Brown. Thus Claims 11 and 12, as well as Claims 13-15 and 17-20, are also patentably distinguishable from the invention of Brown since Brown fails to teach each and every element present in these claims for the same reasons set forth herein.

Based on the foregoing analysis, Applicants respectfully submit that Brown fails to teach or suggest all the claim elements necessary to anticipate the present invention of Claims 1, 2, 6, 8-15 and 17-20 under 35 U.S.C. § 102(b). Applicants therefore respectfully request that these rejections be withdrawn and that Claims 1, 2, 6, 8-15 and 17-20 be allowed to issue.

Claims Rejected Under 35 U.S.C. § 103(a)

In order to establish a prima facie case of obviousness, three basic criteria must be met. First there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second there must be a reasonable expectation of success. Finally the prior art reference (or references when combined) must teach or suggest all the claim elements. The teaching or suggestion to make the claimed combination and the reasonable

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expectation of success must both be found in the prior art and cannot be based on applicant's

disclosure. (MPEP §§ 2142, 2143.)

Regarding Claims 3-5 and 16:

Claims 3-5 and 16 have been rejected by the Examiner under 35 U.S.C. § 103(a) as

unpatentable over Brown in view of Ote et al. (U.S. Patent No. 5,367,628).

In regard to the third criteria (that the prior art references or combination of references

must teach or suggest all the claim elements), Applicants respectfully submit that nowhere does

Brown or Ote, separately or in combination, teach or suggest, multiple emulated operating

systems for virtual machines being emulated by one or more emulator programs running on the

host operating system. In contrast, Claims 3-5, which directly or indirectly depend upon Claim 1

discussed earlier herein, discloses multiple emulated operating systems being emulated by one or

more emulator programs running on the host operating system which are limitations of said

claims that are not found in Brown and Ote separately or in combination. Likewise, Claim 16,

which indirectly depends on Claim 11 as discussed earlier herein, discloses a "host computer

system" and "multiple emulated computer systems" which, as disclosed in the Specification and

discussed earlier herein, comprise a host operating system and emulated operating systems (page

2, line 27 through page 3, line 11) which, again, are limitations of said claim that are not found in

Brown and Ote separately or in combination.

Since neither Brown nor Ote, separately or in combination, suggest or teach multiple

emulated operating systems being emulated by one or more emulator programs running on the

host operating system—and thus fail to teach or suggest all the claim elements of the present

invention—Applicants therefore request that the rejection against Claims 3-5 and 16 under 35

U.S.C. § 103(a) be withdrawn and that these claims be allowed to issue.

Regarding Claim 7:

Claim 7 has been rejected by the Examiner under 35 U.S.C. § 103(a) as unpatentable over

Brown in view of Brett (U.S. Patent No. 5,850,471).

In regard to the third criteria (that the prior art references or combination of references

must teach or suggest all the claim elements), Applicants respectfully submit that nowhere does

Brown or Brett, separately or in combination, suggest or teach a host operating system suitable

for displaying a graphical user interface and multiple emulated operating systems being emulated

by one or more emulator programs running on the host operating system. In contrast, Claim 7,

which depends upon Claim 1 discussed earlier herein, comprises multiple emulated operating

systems being emulated by one or more emulator programs running on the host operating
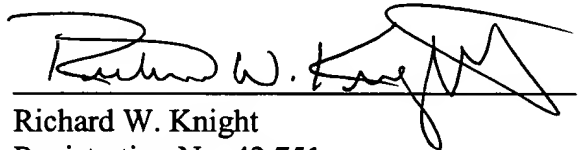
system.

Since neither Brown nor Brett, separately or in combination, suggest or teach a host

operating system suitable for displaying a graphical user interface and multiple emulated

operating systems being emulated by one or more emulator programs running on the host

operating system—and thus fail to teach or suggest all the claim elements of the invention

disclosed in Claim 7—Applicants therefore request that the rejection of Claim 7 under 35 U.S.C.

§ 103(a) be withdrawn and that this claim be allowed to issue.

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CONCLUSION

Based on the reasons and rationale set forth herein, Applicants respectfully submit that the objections and rejections have been overcome and, accordingly, Applicants request that the objections and rejections be withdrawn and that the claims be allowed to issue. **However, should the Examiner find the claims as presented herein to not be allowable for any reason, Applicants' undersigned representative earnestly requests a telephone conference at (206) 332-1394 to discuss the basis for the Examiner's rejection in light of the Applicants' arguments presented herein.** Likewise, should the Examiner have any questions, comments, or suggestions that would expedite the prosecution of the present case to allowance, Applicants' undersigned representative would very much appreciate a telephone conference to discuss these issues.

Respectfully submitted,

Date: **June 24, 2004**

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